German Experience with DRG’s

Late Importer moves systematically to become a leading Adopter and Exporter of Case Mix Support

Prague, 5th December 2007
Ivan Kalman, NI-CO Associate
InterNova GmbH
Leading up to DRG´s: 1985 -2000

• Important Characteristics of the H/C System
  – Consultative Nature of Governance

• Implementation of Change through Steering Committee (Selbstverwaltung) of Insurance Companies, Hospitals and Medical Doctor Associations
  – Federal Government legislates
  – State Government plans and finances Investment Expenditure
  – Insurance Companies pay for Operating Costs
Leading up to DRG´s: 1985 -2000

• The Hospital System legislation was introduced with incentives for better management
  – Prospective and flexible Budgets
  – Gradual move away from historic budgeting
  – However whilst the world was beginning to introduce DRG´s, an expert Study by a major american consulting company recommended not to follow and use instead the „german“ way
Leading up to DRG´s: 1985 - 2000

• Differentiation in Price System
  – Basic and Departmental Per Diems
  – Case based flat charges (Fallpauschalen FP)
  – Special service charges (Sonderentgelte SE)
    • FP´s and SE´s - only 30% of Revenue
  – Ambulatory service charges in hospitals
  – Cost reduction goals were not achieved
Learning System with DRG’s

- Reform legislation introduced in 2000 set up a Learning Framework for Change
  - Admission that the earlier reforms were a mistake
  - Mistake – only a partial introduction of case based performance reimbursement
  - Commitment to develop, implement and begin to go live in less than 3 years, based on an internationally proven comprehensive DRG Case-Mix Model
Which Case Mix Model?

- Two major parallel studies of Alternatives done separately by hospital association and insurance companies
- The hospital association study
  - In less than 6 months
  - Initial Study of Models (performed by Z/I/M – CH)
  - Well defined Dataset (Cardiology/Card.-Surgery)
  - Mappings necessary due to different classifications (ICD10-SGB V/OPS-301)
  - Use of university research group (Münster) and external companies (InterNova, 3M)
Which Case Mix Model?

- Models that were analysed in depth:
  - HCFA-DRG/R-DRG (USA)
  - GHM (France)
  - IAP-DRGs (later IR-DRGs 3M)
  - LDF (Austria)
  - AR-DRG (Australia)
Which Case Mix Model?

• Key Kriteria used for System-Evaluation
  – Grouping focused and understandable?
  – What fit with the german Catalogues (changes needed)?
  – Multimorbidity and complications adequately reflected?
  – Major and costly multiple services reflected?
  – Proportion of Outliers (how to deal with them)?
  – Protection against manipulation?
  – Modern Treatments reflected? Pediatric Cases?
  – Fit with German administrative praxis (i.e.transfers)?
  – Homogenity of Costs?
  – User-friendly and IT-friendly?
Which Case Mix Model?

• Different Motivations of Key Stakeholders
  – Insurance Companies
    • Stability of Insurance Premiums through reduction of Overcapacity and Competition in acute care
    • Those with higher morbidity of membership preferred less DRG specificity
  – Hospitals
    • State and Church hospitals were „lukewarm“
    • Private hospitals and mainly private chains saw opportunities to gain through competition
    • University hospitals preferred DRGs for global budgeting
Which Case Mix Model?

• Different Motivations of Key Stakeholders
  - Doctors Associations
    • Representatives of Ambulatory based doctors feared increased load (early hospital discharge) and demanded introduction of integrated models of care and DRG-like reimbursement in ambulatory sector
    • Hospital based doctors representatives doubted achievement of economic goals due to sectoral budgeting
  - Federal, State and Local Government
    • Federal Level as represented by Ministry of Health wanted to introduce market competition and economic incentives
    • State and Local Governments did not want one for all prospective system, wanted more local flexibility
      - Fear that University hospitals may not be covered adequately and will require higher state/local subsidies
Concensus Achieved

• The Consultative System worked and a decision was made on time
  – Finalists: AR-DRG vs. IR-DRG
  – AR-DRG was chosen as best fitting the technical and political criteria.
    • Key Role of Australian Case Mix Office Support and expectation for an early and more achievable local adaptation and independence from original
  – IR-DRG
    • No track record of use in another country worked against this alternative
Infrastructure for DRG Rollout
InEK – German Case-Mix Office

Financing from System charge 2006 ca. 4,6 Mio €

Management 4
Administration 6
Professionals 16

Tasks
- Data
- Methods
- System

Knowhow
- Medical
- Economics
- EDV & Statistik

Outputs
- Billing System
- Statist. Data
- Rules

Source and Courtesy of InEK

Medical Dept
Economic Dept.
IT & Statistics Dept.
Infrastructure for DRG Rollout

- Yearly Cycle and Participants

Collection and Concept
- Experts
- Hospitals

Control and Process
- InEK
- InEK

Development
- Health Min. / SV
- InEK

Changes and Documentation
- Grouper Providers
- InEK

1. Quarter 2. Quarter 3. Quarter 4. Quarter

Source and Courtesy of InEK
InEK – Tasks of the 1st Half year

Collection and Concept
- Overall Concept of the Undertaking
- Support of Hospitals
- Recommendations on Classification

Validation and Processing
- Cost Calculation in Hospitals
- Hospitals Case Data Transfer
- Analysis of Recommendations
- Preparation of Data for Classification Analysis
- Validation of Hospital Data

1. Quarter
- InEK
- Hospitals
- Experts

2. Quarter
- Participants

Source and Courtesy of InEK
InEK – Tasks of the 2nd half year

Development
- Simulation of Alternative Scenarios
- Definition of Case Groups
- Billing Rules
- DRG Katalog

Changes and Dokumentation
- Adjustment of Costing Scheme
- Change Basic Input Data Set
- Change Grouper software
- Respond to Data Submission
- Certification Grouper software
- Respond to Recommendation Scheme
- Report on the entire Project

Participants
- InEK
- BMGS / SV
- Grouper Providers

3. Quarter

4. Quarter

Source and Courtesy of InEK
Challenges of DRG Refinement

- Magnitude of Change (approx. Per Year)
  - 2000 – 5000 calculated Changes
  - several hundred implemented Modifications
  - 1500 Applications within Innovation Review
  - 1500 recommendations for Improvement

- Determination of a fair Price of medical services requires
  - Correct Calculation of costs
  - Correct Case allocation to cost-homogeneous Classes (Classification)

- Medical Relevance is also required
Challenges of DRG Refinement

- Increase the Size and the Quality of the Database for Calculating Cost-Weights

- Hospitals participating in Cost Calculation

- Case Data supplied (green) / used Cases (blue)
Refinement of G-DRG Algorithmus

• Examples
  – Organ Transplantations
  – Oncology
  – Radio Therapy
  – Intensive Care
    • Stroke Units
    • Multiple Trauma
  – Rheumatology
  – Geriatrics
  – Significant changes in cc-Matrix from 2007
Example of DRG Refinement

<table>
<thead>
<tr>
<th>AR-DRG V4.1</th>
<th>Colonoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>G43Z - Complex Therapeutic Colonoscopy</td>
<td>G44A - Other Colonoscopy W Catastrophic or Severe CC or Complicating Procedure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>G-DRG 2004</th>
<th>Colonoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>G48A - Koloskopie mit äußerst schweren oder schweren CC oder komplizierendem Eingriff</td>
<td>G48B - Koloskopie ohne äußerst schwere oder schwere CC, ohne komplizierenden Eingriff</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>G-DRG 2005</th>
<th>Colonoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>G48Z - Koloskopie, mehr als 2 Belegungstage, mit äußerst schweren oder schweren CC oder komplizierendem Eingriff</td>
<td>G49Z - Koloskopie und Gastroskopie, weniger als 3 Belegungstage</td>
</tr>
</tbody>
</table>
**Example of DRG Refinement**

<table>
<thead>
<tr>
<th>G-DRG 2006</th>
<th>Colonoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>G48Z - Koloskopie mit äußerst schweren oder schweren CC oder komplizierendem Eingriff</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>G-DRG 2007</th>
<th>Colonoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>G48A - Koloskopie mit äußerst schweren oder schweren CC oder komplizierendem Eingriff, mit komplizierender Diagnose</td>
<td>G48B - Koloskopie mit äußerst schweren oder schweren CC oder komplizierendem Eingriff, ohne komplizierende Diagnose</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>G-DRG 2008</th>
<th>Colonoscopy</th>
</tr>
</thead>
</table>
## Development of National Coding Standards within the Czech DRG System

### Refinement of G-DRG’s

<table>
<thead>
<tr>
<th>DBC</th>
<th>Description</th>
<th>AR-DRGsV4.1</th>
<th>G-DRGsV2008</th>
<th>Diff.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Unassignable to MDC</td>
<td>8</td>
<td>62</td>
<td>+54</td>
</tr>
<tr>
<td>1</td>
<td>Diseases and Disorders of the Nervous System</td>
<td>50</td>
<td>108</td>
<td>+58</td>
</tr>
<tr>
<td>2</td>
<td>Diseases and Disorders of the Eye</td>
<td>20</td>
<td>30</td>
<td>+10</td>
</tr>
<tr>
<td>3</td>
<td>Diseases and Disorders of the Ear, Nose, Mouth and Throat</td>
<td>27</td>
<td>58</td>
<td>+31</td>
</tr>
<tr>
<td>4</td>
<td>Diseases and Disorders of the Respiratory System</td>
<td>41</td>
<td>61</td>
<td>+20</td>
</tr>
<tr>
<td>5</td>
<td>Diseases and Disorders of the Circulatory System</td>
<td>64</td>
<td>130</td>
<td>+66</td>
</tr>
<tr>
<td>6</td>
<td>Diseases and Disorders of the Digestive System</td>
<td>52</td>
<td>75</td>
<td>+23</td>
</tr>
<tr>
<td>7</td>
<td>Diseases and Disorders of the Hepatobiliary System and Pancreas</td>
<td>30</td>
<td>33</td>
<td>+3</td>
</tr>
<tr>
<td>8</td>
<td>Diseases and Disorders of the Musculoskeletal System and Connective Tissue</td>
<td>79</td>
<td>130</td>
<td>+51</td>
</tr>
<tr>
<td>9</td>
<td>Diseases and Disorders of the Skin, Subcutaneous Tissue and Breast</td>
<td>32</td>
<td>47</td>
<td>+15</td>
</tr>
<tr>
<td>10</td>
<td>Endocrine, Nutritional and Metabolic Diseases and Disorders</td>
<td>19</td>
<td>40</td>
<td>+21</td>
</tr>
<tr>
<td>11</td>
<td>Diseases and Disorders of the Kidney and Urinary Tract</td>
<td>37</td>
<td>65</td>
<td>+28</td>
</tr>
<tr>
<td>12</td>
<td>Diseases and Disorders of the Male Reproductive System</td>
<td>19</td>
<td>24</td>
<td>+5</td>
</tr>
<tr>
<td>13</td>
<td>Diseases and Disorders of the Female Reproductive System</td>
<td>20</td>
<td>35</td>
<td>+15</td>
</tr>
<tr>
<td>14</td>
<td>Pregnancy, Childbirth and the Puerperium</td>
<td>18</td>
<td>26</td>
<td>+8</td>
</tr>
<tr>
<td>15</td>
<td>Newborns and Other Neonates</td>
<td>25</td>
<td>42</td>
<td>+17</td>
</tr>
<tr>
<td>16</td>
<td>Diseases and Disorders of Blood, Blood Forming Organs, Immunological Disorders</td>
<td>10</td>
<td>16</td>
<td>+6</td>
</tr>
<tr>
<td>17</td>
<td>Neoplastic Disorders (Haematological and Solid Neoplasms)</td>
<td>18</td>
<td>51</td>
<td>+33</td>
</tr>
<tr>
<td>18A</td>
<td>HIV</td>
<td>7</td>
<td>8</td>
<td>+1</td>
</tr>
<tr>
<td>18B</td>
<td>Infectious and Parasitic Diseases, Systemic or Unspecified Sites</td>
<td>13</td>
<td>21</td>
<td>+8</td>
</tr>
<tr>
<td>19</td>
<td>Mental Diseases and Disorders</td>
<td>13</td>
<td>11</td>
<td>-2</td>
</tr>
<tr>
<td>20</td>
<td>Alcohol/Drug Use and Alcohol/Drug Induced Organic Mental Disorders</td>
<td>7</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>21A</td>
<td>Polytrauma</td>
<td>6</td>
<td>12</td>
<td>+6</td>
</tr>
<tr>
<td>21B</td>
<td>Injuries, Poisonings and Toxic Effects of Drugs</td>
<td>18</td>
<td>15</td>
<td>-3</td>
</tr>
<tr>
<td>22</td>
<td>Burns</td>
<td>8</td>
<td>10</td>
<td>+2</td>
</tr>
<tr>
<td>23</td>
<td>Factors Influencing Health Status and Other Contacts with Health Services</td>
<td>13</td>
<td>11</td>
<td>-2</td>
</tr>
<tr>
<td>98</td>
<td>Error DRGs</td>
<td>7</td>
<td>9</td>
<td>+2</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>661</strong></td>
<td><strong>1137</strong></td>
<td><strong>+476</strong></td>
</tr>
</tbody>
</table>
### Refinement of Severity Splits

<table>
<thead>
<tr>
<th>Base-DRGs</th>
<th>Severity</th>
<th>AR-DRGs V 4.1</th>
<th>G-DRGs V 2008</th>
<th>Diff.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsplitled</td>
<td>Z</td>
<td>213</td>
<td>318</td>
<td>+105</td>
</tr>
<tr>
<td>splitled</td>
<td>A,B</td>
<td>146</td>
<td>154</td>
<td>+8</td>
</tr>
<tr>
<td></td>
<td>A,B,C</td>
<td>44</td>
<td>73</td>
<td>+29</td>
</tr>
<tr>
<td></td>
<td>A,B,C,D</td>
<td>6</td>
<td>31</td>
<td>+25</td>
</tr>
<tr>
<td></td>
<td>A,B,C,D,E</td>
<td>11</td>
<td></td>
<td>+11</td>
</tr>
<tr>
<td></td>
<td>A,B,C,D,E,F</td>
<td></td>
<td></td>
<td>+11</td>
</tr>
<tr>
<td></td>
<td>A,B,C,D,E,F,G</td>
<td></td>
<td></td>
<td>+3</td>
</tr>
<tr>
<td></td>
<td>A,B,C,D,E,F,G,H</td>
<td></td>
<td></td>
<td>+1</td>
</tr>
<tr>
<td></td>
<td>A,B,C,D,E,F,G,H,I</td>
<td></td>
<td></td>
<td>+2</td>
</tr>
<tr>
<td># of Adj./Basis DRGs</td>
<td></td>
<td>409</td>
<td>604</td>
<td>+195</td>
</tr>
<tr>
<td>Severity Splits</td>
<td></td>
<td>4</td>
<td>9</td>
<td>+4</td>
</tr>
</tbody>
</table>
Development of National Coding Standards within the Czech DRG System

Influence of DRG Rollout on Budget Timeline

2003:
Voluntary introduction
(G-DRG 1.0 ≈ AR-DRG 4.1)

Converge hospital individual baserate to „state baserate“

2004:
All hospitals (G-DRG 2004)

Timeline

Budget neutral

DRG-Introduction

Period of Convergence

2003  →  2004  →  2005
Max 1%  →  Max 1,5%  →  Max 2%

2006  →  2007  →  2008  →  2009
Max 2%  →  Max 2,5%  →  Max 3%

Limit of total budget loss
Development of National Coding Standards within the Czech DRG System

Influence of Rollout on Budget
From individual to common Baserate

DRG-Baserate

Ø State

DRG-“Looser“

Period of convergence

2009

DRG-“Winner“
Development of National Coding Standards within the Czech DRG System

Baserate Profile

Baserates of German Hospitals in 2006

- Mainly Large (University) hospitals
- Paediatric hospitals
- Hospitals with high degree of specialisation

Number of Hospitals

Baserate
## Winners and Losers

### Convergence Status of Hospitals by States (2006)

<table>
<thead>
<tr>
<th>State</th>
<th>BRate</th>
<th>VB</th>
<th>BE KH Number</th>
<th>DRG KH</th>
<th>Winners in %</th>
<th>Loosers in %</th>
<th>Protected in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brandenburg</td>
<td>2642</td>
<td>47</td>
<td>4</td>
<td>43</td>
<td>51</td>
<td>49</td>
<td>29</td>
</tr>
<tr>
<td>Berlin</td>
<td>2955</td>
<td>39</td>
<td>0</td>
<td>39</td>
<td>74</td>
<td>26</td>
<td>30</td>
</tr>
<tr>
<td>Baden-Württemberg</td>
<td>2814</td>
<td>211</td>
<td>9</td>
<td>202</td>
<td>56</td>
<td>43</td>
<td>53</td>
</tr>
<tr>
<td>Bayern</td>
<td>2737</td>
<td>300</td>
<td>19</td>
<td>281</td>
<td>64</td>
<td>35</td>
<td>48</td>
</tr>
<tr>
<td>Bremen</td>
<td>2849</td>
<td>12</td>
<td>0</td>
<td>12</td>
<td>58</td>
<td>42</td>
<td>40</td>
</tr>
<tr>
<td>Hessen</td>
<td>2786</td>
<td>113</td>
<td>4</td>
<td>109</td>
<td>61</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>Hamburg</td>
<td>2847</td>
<td>16</td>
<td>1</td>
<td>15</td>
<td>73</td>
<td>27</td>
<td>50</td>
</tr>
<tr>
<td>Mecklen-Vorpomm</td>
<td>2625</td>
<td>25</td>
<td>1</td>
<td>24</td>
<td>75</td>
<td>25</td>
<td>33</td>
</tr>
<tr>
<td>Niedersachsen</td>
<td>2756</td>
<td>176</td>
<td>1</td>
<td>175</td>
<td>50</td>
<td>49</td>
<td>38</td>
</tr>
<tr>
<td>Nordrhein-Westfalen</td>
<td>2687</td>
<td>369</td>
<td>7</td>
<td>362</td>
<td>59</td>
<td>40</td>
<td>42</td>
</tr>
<tr>
<td>Rheinland-Pfalz</td>
<td>2956</td>
<td>77</td>
<td>1</td>
<td>76</td>
<td>76</td>
<td>22</td>
<td>47</td>
</tr>
<tr>
<td>Schleswig-Holstein</td>
<td>2653</td>
<td>51</td>
<td>3</td>
<td>48</td>
<td>60</td>
<td>35</td>
<td>41</td>
</tr>
<tr>
<td>Saarland</td>
<td>2902</td>
<td>25</td>
<td>0</td>
<td>25</td>
<td>40</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Sachsen</td>
<td>2711</td>
<td>78</td>
<td>1</td>
<td>77</td>
<td>49</td>
<td>51</td>
<td>36</td>
</tr>
<tr>
<td>Sachsen-Anhalt</td>
<td>2730</td>
<td>44</td>
<td>0</td>
<td>44</td>
<td>48</td>
<td>52</td>
<td>48</td>
</tr>
<tr>
<td>Thüringen</td>
<td>2722</td>
<td>39</td>
<td>2</td>
<td>37</td>
<td>65</td>
<td>35</td>
<td>23</td>
</tr>
</tbody>
</table>

- Krankenhaus-Report 2007
Impact of DRG’s on Hospitals

• Hospitals responded to increased opportunities for change
  – Case-Mix Information gave them a good feeling for relative position, strength and weaknesses
  – Changes in Service Portfolio through realignment of services
    • Local/Regional cooperations
    • Increased privatisation
Impact of DRG´s on Hospitals

- Concentration on Process Improvement
  - aided by new IT concepts
  - Resulted in greater emphasis on Quality Improvement
    - The Federal Quality Service (BQS) begun to be taken seriously
    - BQS-Data and Activity data were initially not being merged for reporting
    - Increase in Certification/Acreditation
    - Care Plans were being developed
Impact of DRG´s on Hospitals

• Insurance Companies responded by increased Audits at case level
  – MDK (Medical Service of Insurance Companies) was accused of arbitrary behaviour
  – IT Systems of Insurers and Training of Staff lagged
  – Lack of Standards of Treatment to match the DRG View
  – Complex Readmission Rules governing consecutive Cases

• Increased documentation requirements
  – Initial response of doctors was negative
  – Documentation Assistants as a new profession
### Key Hospital Indicators

<table>
<thead>
<tr>
<th>Hospital Indicators</th>
<th>Report Year</th>
<th>Change against 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitals</td>
<td>2.139</td>
<td>2.166</td>
</tr>
<tr>
<td>Available Beds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Number of Beds</td>
<td>523.824</td>
<td>531.333</td>
</tr>
<tr>
<td>- per 100 000 Population</td>
<td>635</td>
<td>644</td>
</tr>
<tr>
<td>Hospital admissions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Number of Admissions</td>
<td>16.873.885</td>
<td>16.801.649</td>
</tr>
<tr>
<td>- per 100 000 Population</td>
<td>20.462</td>
<td>20.365</td>
</tr>
<tr>
<td>Patient Days in 1 000</td>
<td>144.576</td>
<td>146.746</td>
</tr>
<tr>
<td>Average Length of Stay</td>
<td>8,6</td>
<td>8,7</td>
</tr>
<tr>
<td>Average Occupancy</td>
<td>75,6</td>
<td>75,5</td>
</tr>
</tbody>
</table>

Source: Krankenhaus-Report 2007, WidO
Courtesy Schattauer Verlag
Impact of DRG´s on Hospitals

• The yearly Refinement of DRG´s resulted in increased complexity and challenge for hospital and medical management
  – Increase in the Amount of Requests for Change tabled with InEK
  – Initial lack of cooperation by large and University hospitals changed in the last 2 years and contributed to increased rate of change
  – Increase in Co-Payments for Services and Medical Products which are not reflected in DRG Algorithm (from 0 to 115 in 2008)
Impact on Hospital Associations

• Federal Association
  – Involvement in longterm policy issues such as Convergence and what comes after

• State Associations
  – Have to negotiate the State Base Rate
    • Must partially replicate work that InEK does nationally
    • Change (in effect from 2003) in Principle of Pricing that was in place since 1972

• Regional and other Interest Groupings
  – Assist with Budget negotiations that have increased in complexity
  – Special Interest Groups (University etc.)
Impact on Health Ministry

• Final responsibility for the Introduction of the DRG Case-Mix System (through the Consultative Mechanism)

• Became an Arbitrator when the Members of the Consultative Mechanism did not agree

• The Ministry does not otherwise have direct influence over InEK
Conclusion

• The Refined German DRG System meets the requirements of the country
  – Through increased Complexity and reduced Variation the DRG´s are better tuned, however further development/tuning is necessary
  – It can also meet the requirements of other countries
    • Example – Switzerland has started its Refinement (Helvetisation) based on G-DRGs (InEK plays a major support role)
    • Other non german speaking countries

• Late Starter moves to Leading Adopter and Exporter
Weblinks

- www.g-drg.de
- www.mydrg.de
- www.internova-health.com/index_neuheit.htm
- www.swissdrg.org

Thank you for your attention